

AMENDMENT(S) TO THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims on the application. All claims are set forth below with one of the following annotations.

- (Original): Claim filed with the application.
- (Currently amended): Claim being amended in the current amendment paper.
- (Canceled): Claim cancelled or deleted from the application. No claim text is shown.
- (Withdrawn): Claim still in the application, but in a non-elected status.
- (New): Claim being added in the current amendment paper.
- (Previously presented): Claim added or amended in an earlier amendment paper.
- (Not entered): Claim presented in a previous amendment, but not entered or whose entry status unknown. No claim text is shown.

1.–19. Cancelled.

20. (Currently amended) An apparatus for creating, utilizing a pair of oppositely opposed headphones, the sensation of a sound source being spatially distant from the area between said pair of headphones, said apparatus comprising:

(a) a series of audio input terminals to accept a series of audio inputs representing audio signals each being projected from an idealized sound source located at a respective spatial location relative to an idealized listener, the series of audio inputs including at least a left audio input and a right audio input;

(b) a first mixing matrix means interconnected to said audio inputs and a series of feedback inputs for outputting a predetermined combination of said audio inputs as intermediate output signals;

(c) a filter system for filtering said intermediate output signals and outputting filtered intermediate output signals and said series of feedback inputs, said filter system including ~~separate filters for filtering~~ one or more filters to account for the direct

response ~~and short time response~~ of a room and one or more filters to account for an approximation to the reverberant response of the room, the filter system including in addition to feedback response filtering for producing said feedback inputs, such that the filtered intermediate output signals include filtered direct response signals, ~~filtered and short time response signals~~, and filtered reverberant signals; and

(d) a second matrix mixing means combining said filtered intermediate output signals to produce left and right channel stereo outputs.

21. (Original) An apparatus as claimed in claim 20 wherein a predetermined number of said feedback inputs are also input to said second matrix mixing means.
22. (Original) An apparatus as claimed in claim 20 wherein said feedback response filtering comprises a reverberation filter.
23. (Original) An apparatus as claimed in claim 22 wherein said reverberation filter comprises one of a sparse tap FIR, a recursive algorithmic filter or a full convolution FIR filter.
24. (Previously presented) An apparatus as claimed in claim 20 wherein said audio inputs comprise a surround sound set of signals.
25. (Original) An apparatus as claimed in claim 24 wherein said feedback inputs are mixed with the frontal portions of said audio inputs only.
26. (Previously presented) An apparatus as claimed in claim 20 wherein said filter system includes a front sum filter filtering a summation of said audio inputs positioned in front of said idealized listener and said front sum filter comprises substantially an approximation of the sum of a direct and shadowed head related transfer function for said front inputs.

27. (Previously presented) An apparatus as claimed in claim 20 wherein said filter system includes a front difference filter filtering a difference of said audio inputs positioned in front of said idealized listener and said front difference filter comprises substantially an approximation of the difference of a direct and shadowed head related transfer function for said front inputs.
28. (Previously presented) An apparatus as claimed in claim 20 wherein said filter system includes a rear sum filter filtering a summation of said audio inputs positioned in rear of said idealized listener and said rear sum filter comprises substantially an approximation of the sum of a direct and shadowed head related transfer function for said rear inputs.
29. (Previously presented) An apparatus as claimed in claim 20 wherein said filter system includes a rear difference filter filtering a difference of said audio inputs positioned in rear of said idealized listener and said rear difference filter comprises substantially an approximation of the difference of a direct and shadowed head related transfer function for said rear inputs.
30. (Previously presented) An apparatus as claimed in claim 20 wherein said filter system includes a reverberation filter interconnected to the sum of said audio inputs.

31.–51. (Cancelled)

52. (New) An apparatus as claimed in claim 20, wherein said one or more filters to account for the direct response also account for the short time echo response of the room.